CLEAN VERSION OF AMENDMENTS

IN THE SPECIFICATION

1. Please amend the first paragraph at column 2, from line 7 through line 31, to read as follows:

To achieve stable flying characteristics, the slider should also fly at a pitch angle that falls within a safe range of a predetermined value. The pitch angle is defined as the tilt angle between the principal plane of the slider in the tangential direction of the rotating disc and the principal plane of the disc surface. The pitch angle is positive in the normal case in which the flying height of the rear portion of the slider is lower than that of the front portion of the slider. A transducer is generally situated at the lowest position of the rear portion of the slider for maximizing recording data capacity. If the designed pitch angle is too small, the possibility exists that a disturbance will cause the front end of the slider to dip down such that a negative pitch ensues resulting in a collision with the rapidly rotating disk. On the other hand, if the designed pitch angle is too large, the air stiffness needed for stable flying can be disadvantagously reduced. Therefore, to maintain stability while avoiding the situation of a negative pitch angle, the slider should be configured such that the pitch angle can be controlled to fall within an optimum value range. Another factor to consider regarding pitch angle is the general tendency for the pitch angle to increase with skew angle increases as the slider is positioned in a radially outward direction over the disc surface. Thus, the pitch angle should fall within the safe range regardless of skew angle variations.

2. Please amend the three consecutive paragraphs at column 3, from line 4 through line 49, to read as follows:

An improved configuration aimed at countering flying height variations over the entire disc surface is the transverse pressure contour (TPC) slider, as described, for example, in U.S. Pat. No. 4,673,996. As shown in FIG. 2 herein, this slider is also characterized by ABS rails 11b formed on a slider body 10b, and ramp portions 12b formed at the leading edge of the ABS rails 11b. In addition, however, a step-down 111b is formed lengthwise on the both sides of each of the ABS rails 11b. The slider of this TPC structure has the advantage of maintaining reasonably constant flying height regardless of skew angle variations. However, this TPC slider exhibits reduced flying stability which is caused by insufficient air stiffness resulting in the reduction of the ABS surface area. Also, the TPC modification does not improve pitch and roll angle variations resulting from changes in skew angle.

In light of the above, to better realize a constant flying height and constant pitch and roll angles and to obtain an improve contact start stop (CSS) performance, most current air bearing sliders have adopted a negative pressure air bearing (NPAB) type of configuration with a variety of air bearing surface shape changes. A basic NPAB slider has the same structure of the slider shown in FIG. 1, together with a cross rail connecting the ABS rails. That is, as shown in FIG. 3, two ABS rails 11c each having a slope 12c at a leading edge thereof are formed in parallel on a surface of a body 10c. A cross rail 13c having the same height as the ABS rail 11c is formed between the rails 11c proximate the slopes 12c. The cross rail 13c creates a negative pressure cavity 15c in proximity

to the central surface portion of the body 10c. Thus, since the pressure of the air passing over the cross rail is diffused as it passes the negative pressure cavity 15c, a pulling or suction force is downwardly applied on the slider which reduces suspension gram load and provides the advantage of a fast take off from the disc surface. The counter action between the positive and negative forces reduces the sensitivity of the slider flying height relative to disc velocity and increases the slider stiffness characteristics.

Because of sub-ambient pressure of cavity 15c, roll angle during a high skew condition can worsen, meaning that the NPAB slider of FIG. 3 exhibits more negative roll effects at high skew positions than the convention tapered flat slider of FIG. 1. Also, there is a tendency for debris to gather at the cross-rail 13c. Such debris can ultimately have an adverse effect on performance.

3. Please amend the paragraph bridging columns 3 and 4, from line 65 at column 3 through line 37 at column 4, to read as follows:

Accordingly, to achieve the above and other objects, there is provided according to the invention a negative pressure air bearing slider, comprising: a slider body for flying above a surface of a recording disc during relative rotation of the recording disc, the slider body having a principal surface for confronting the disc surface, said principal surface having a lead portion, a rear portion, a first side portion and a second side portion, wherein the lead portion is spaced upstream of the rear portion relative to a longitudinal direction of said slider body which is coincident with a tangential rotational direction of the recording disc, and wherein the first side portion is spaced from the second

side portion relative to a lateral direction of said slider body; first and second projections extending from said lead portion of said principal surface of said main body to define first and second air bearing surfaces, respectively, wherein said first and second air bearing surfaces are spaced apart from each other in the lateral direction of said slider body; and a U-shaped third projection extending from said principal surface and having a curved front wall portion at least partially located between said first and second projections and curved first and second side wall portions extending from opposite ends of said curved front wall portion to said rear portion of said principal surface so as to define a rounded negative pressure cavity therein, said curved front wall portion and said first and second curved side wall portions being spaced apart from said first and second projections, wherein the first and second curved side wall portions respectively extend along said first and second side portions of said principal surface and define third and fourth air bearing surfaces located at said rear portion of said principal surface and spaced apart from each other relative to the radial direction of said slider body; a fourth projection extending from said rear portion of said principal surface of said slider body at a position centrally located in the lateral direction of said slider body; and a transducer mounted on a rear edge of said third projection so as to establish pseudo contact with the disc surface while said slider body is flying above said disc surface.

4. Please amend the three consecutive paragraphs at column 5, from line 12 through line 45, to read as follows:

As shown in FIGS. 4 and 5, first and second lead ABS platforms 110a and 110b are provided

at a lead surface portion of a slider body 100 projecting from a principal surface 111 thereof. The lead ABS platforms 110a and 110b are symmetrically or unsymmetrically disposed on opposite sides of a longitudinal axis L of the slider body 100 and are aligned with one another along a lateral axis H, and thus in a lateral direction of the slider body 100, and provide a positive lifting force at an air inlet between the slider body 100 and the disc surface (not shown). Also, a ramp portion 120 extends from a lead edge 121 of the slider body 100 to the ABS platforms 110a and 110b.

Trailing ABS 110c and 110d are provided at the rear surface portion of the slider body 100 adjacent a rear edge 123 thereof. These trailing ABS platforms 110c and 110d are symmetrically disposed on opposite sides of a central longitudinal axis L of the slider body 100 and are aligned with one another in a lateral direction of the slider body 100, and provide a positive lifting force at an air outlet between the slider body 100 and the disc surface (not shown). In operation, the front and rear ABS platforms 110a, 110b, 110c and 110d generate sufficient positive pressure to support the slider body 100 in a suspended state above a rotating disk of a hard disk drive.

In addition, as shown in FIGS. 4 and 5, an arcuate cross rail 130 extends across the principal surface 111 of the slider 100 and between the rear ABS platforms 110c and 110d and lead ABS platforms 110a and 110b and generally along the latitudinal axis H. The arcuate cross rail 130 and the rear ABS platforms 110c and 110d together define a substantially U-shaped projection that extends from the principal surface 111 of the slider 100. The curvature of the cross rail 130 forms a negative pressure cavity 150, that may be somewhat rounded, at the center of the slider body 100.

5. Please amend the three consecutive paragraphs at column 6, from line 27 through line 57, to read as follows:

Reference numeral 180 of FIG. 4 denotes a centrally located rail for mounting of the transducer. In particular, the transducer is mounted on the rear edge 123 of the rail 180, so as to make psuedo contact with the recording disc during flight of the slider body 100. As shown, the rear edge 123 of the rail 180 is located further to the rear of the slider body 100 than is the rear edges of the ABS platforms 110c and 110d.

As shown in FIGS. 6(b), 6(a), the cross rail 130 may be respectively smoothly configured without inner or outer corners, or it instead may be formed by a series of connected straight sidewall segments, or a combination thereof. In any case, a substantially rounded negative pressure region is formed in proximity to the geometrical center of the slider body by negative pressure cavity 150.

Referring again to FIG. 4, the air that supports lead ABS platforms 110a and 110b is initially compressed through action of the respective ramp regions 120 positioned at the front edge 121 of the slider body 100. The amount of air can be adjusted by changing the inclination angle of the ramp 120. Lithography techniques are used to create complex NPAB-type sliders, and a typical inclination of the etched surface obtained through lithography is around 18 degrees. Also, as shown in FIG. 7, the slider ramp regions 120 can be completely replaced by shallow recessed edge steps 120 through a lithography process.